

What is claimed is:

1. A method for preventing, treating or delaying neoplasm in a mammal, which method comprises administering to a mammal, to which such prevention, treatment or delay is needed or desirable, an effective amount of an ErbB-3 protein, or a functional fragment thereof, or a nucleic acid encoding an ErbB-3 protein, or a functional fragment thereof, whereby an immune response is generated against said neoplasm and said neoplasm is prevented, treated or delayed.
2. The method of claim 1, wherein the mammal is a human.
3. The method of claim 1, wherein an effective amount of an extracellular domain of an ErbB-3 protein, or a functional fragment thereof, or a nucleic acid encoding an extracellular domain of an ErbB-3 protein, or a functional fragment thereof, is administered.
4. The method of claim 1, wherein the ErbB-3 protein comprises an amino acid sequence set forth in SEQ ID NO:1 or at least amino acid residues 24-81 of the amino acid sequence set forth in SEQ ID NO:14 or at least amino acid residues 2-139 of the amino acid sequence set forth in SEQ ID NO:16.
5. The method of claim 5, wherein the extracellular domain of the ErbB-3 protein, or a functional fragment thereof, comprises an amino acid sequence set forth in SEQ ID NO:2 or SEQ ID NO:3.
6. The method of claim 1, further comprising administering an immune response potentiator to the mammal.
7. The method of claim 1, wherein the ErbB-3 protein, or a functional fragment thereof, or the nucleic acid encoding an ErbB-3 protein, or a functional fragment thereof, is administered to the neoplasm *in situ*.

8. The method of claim 7, further comprising administering an immune response potentiator to the neoplasm *in situ*.

9. The method of claim 1, wherein the ErbB-3 protein, or a functional fragment thereof, or the nucleic acid encoding an ErbB-3 protein, or a functional fragment thereof, is co-administered with a pharmaceutically acceptable carrier or excipient.

10. The method of claim 1, wherein the ErbB-3 protein, or a functional fragment thereof, or the nucleic acid encoding an ErbB-3 protein, or a functional fragment thereof, is co-administered with an anti-neoplasm agent.

11. The method of claim 10, wherein the anti-neoplasm agent is selected from the group consisting of an anti-angiogenic agent, an alkylating agent, an antimetabolite, a natural product, a platinum coordination complex, an anthracenedione, a substituted urea, a methylhydrazine derivative, an adrenocortical suppressant, a hormone, an antagonist, an oncogene inhibitor, a tumor suppressor gene or protein, an anti-oncogene antibody and an anti-oncogene antisense oligonucleotide.

12. The method of claim 1, wherein the neoplasm to be prevented, treated or delayed is selected from the group consisting of adrenal gland, anus, auditory nerve, bile ducts, bladder, bone, brain, breast, buccal, central nervous system, cervix, colon, ear, endometrium, esophagus, eye, eyelids, fallopian tube, gastrointestinal tract, head and neck, heart, kidney, larynx, liver, lung, mandible, mandibular condyle, maxilla, mouth, nasopharynx, nose, oral cavity, ovary, pancreas, parotid gland, penis, pinna, pituitary, prostate gland, rectum, retina, salivary glands, skin, small intestine, spinal cord, stomach, testes, thyroid, tonsil, urethra, uterus, vagina, vestibulocochlear nerve and vulva neoplasm.

13. The method of claim 1, wherein the neoplasm to be prevented, treated or delayed is selected from the group consisting of breast, ovary, stomach, prostate, colon and lung cancer.

14. The method of claim 1, wherein the neoplasm to be prevented, treated or delayed is breast cancer.

15. An isolated nucleic acid fragment, which isolated nucleic acid fragment comprises a sequence of nucleotides encoding:

- a) an extracellular domain of the ErbB-3 protein, or a functional fragment thereof, comprising an amino acid sequence set forth in SEQ ID NO:2 or SEQ ID NO:3;
- b) an amino acid sequence comprising at least amino acid residues 24-81 of the amino acid sequence set forth in SEQ ID NO:14; or
- c) an amino acid sequence comprising at least amino acid residues 2-139 of the amino acid sequence set forth in SEQ ID NO:16.

16. The isolated nucleic acid fragment of claim 15, wherein the nucleic acid is DNA.

17. The isolated nucleic acid fragment of claim 15, wherein the nucleic acid is RNA.

18. A plasmid, which plasmid comprises the nucleic acid fragment of claim 16.

19. A cell, which cell comprises the plasmid of claim 18.

20. The cell of claim 19, which is selected from the group consisting of a bacterial cell, a yeast cell, a fungal cell, a plant cell, an insect cell, an animal cell and a human cell.

21. A method for producing an extracellular domain of the ErbB-3 protein, or a functional fragment thereof, which method comprises growing the cell of claim 19 under conditions whereby the extracellular domain of the ErbB-3 protein, or a functional fragment thereof, is expressed by the cell, and recovering the expressed extracellular domain of the ErbB-3 protein, or a functional fragment thereof.

22. A substantially purified protein or peptide, which comprises:

- a) an extracellular domain of the ErbB-3 protein, or a functional fragment thereof, comprising an amino acid sequence set forth in SEQ ID NO:2 or SEQ ID NO:3;
- b) an amino acid sequence comprising at least amino acid residues 24-81 of the amino acid sequence set forth in SEQ ID NO:14; or
- c) an amino acid sequence comprising at least amino acid residues 2-139 of the amino acid sequence set forth in SEQ ID NO:16.

23. A conjugate, which conjugate comprises:

- a) a protein or peptide comprising:
 - i) an extracellular domain of the ErbB-3 protein, or a functional fragment thereof, comprising an amino acid sequence set forth in SEQ ID NO:2 or SEQ ID NO:3;
 - ii) an amino acid sequence comprising at least amino acid residues 24-81 of the amino acid sequence set forth in SEQ ID NO:14; or
 - iii) an amino acid sequence comprising at least amino acid residues 2-139 of the amino acid sequence set forth in SEQ ID NO:16; and
- b) a facilitating agent linked to the extracellular domain of the ErbB-3 protein , or a functional fragment thereof, directly or via a linker, wherein the agent facilitates:
 - i) affinity isolation or purification of a conjugate;
 - ii) attachment of a conjugate to a surface; or
 - iii) detection of a conjugate.

24. The conjugate of claim 23, which is a fusion protein.

25. A pharmaceutical composition, which pharmaceutical composition comprises an isolated nucleic acid fragment of claim 15 and a pharmaceutically acceptable carrier or excipient.

26. The pharmaceutical composition of claim 25, which further comprises an immune response potentiator and/or an anti-neoplasm agent.

27. A pharmaceutical composition, which pharmaceutical composition comprises a substantially purified protein or peptide of claim 22 and a pharmaceutically acceptable carrier or excipient.

28. The pharmaceutical composition of claim 27, which further comprises an immune response potentiator and/or an anti-neoplasm agent.

29. An antibody, which antibody binds:

- a) to an epitope in an extracellular domain of the ErbB-3 protein, or a functional fragment thereof, comprising an amino acid sequence set forth in SEQ ID NO:2 or SEQ ID NO:3;
- b) to an epitope of an amino acid sequence comprising at least amino acid residues 24-81 of the amino acid sequence set forth in SEQ ID NO:14; or
- c) to an epitope of an amino acid sequence comprising at least amino acid residues 2-139 of the amino acid sequence set forth in SEQ ID NO:16.

30. The antibody of claim 29, which is a polyclonal or monoclonal antibody.

31. The antibody of claim 29, which is a human or humanized antibody.

32. A pharmaceutical composition, which pharmaceutical composition comprises an antibody of claim 29 and a pharmaceutically acceptable carrier or excipient.

33. The pharmaceutical composition of claim 32, which further comprises an anti-neoplasm agent.

34. A vaccine, which vaccine comprises an isolated nucleic acid fragment of claim 15.

35. The vaccine of claim 34, which further comprises an immune response potentiator.

36. A vaccine, which vaccine comprises a substantially purified protein or peptide of claim 22.
37. The vaccine of claim 36, which further comprises an immune response potentiator.
38. A kit, which kit comprises an isolated nucleic acid fragment of claim 15 in a container and an instruction for using the isolated nucleic acid fragment in preventing, treating or delaying a neoplasm.
39. A kit, which kit comprises a substantially purified protein or peptide of claim 22 in a container and an instruction for using the substantially purified protein or peptide in preventing, treating or delaying a neoplasm.
40. A combination, which combination comprises an isolated nucleic acid fragment of claim 15 and an anti-neoplasm agent.
41. The combination of claim 40, which further comprises a pharmaceutically acceptable carrier or excipient.
42. A combination, which combination comprises a substantially purified protein or peptide of claim 22 and an anti-neoplasm agent.
43. The combination of claim 42, which further comprises a pharmaceutically acceptable carrier or excipient.